

CLAIMS

1. A method for monitoring and/or controlling the status of a plasma in a plasma spectrometer, which comprises :

- 5 - acquiring image data of the plasma ; and
- a) displaying an image of the plasma from the image data on a display device, and/or
- b) storing the image data in a computer unit along with measured data.

10 2. The method of claim 1 wherein the image data are processed to obtain intensity images, intensity contour, color contour, intensity outline, time base fluctuation of above image data and compared with a plasma optimal condition data set.

3. The method of claim 1 or 2, wherein the plasma spectrometer is an optical emission spectrometer.

15 4. The method of claim 3, wherein the spectrometer has an entrance slit and image data of the spectrometer entrance slit are acquired, and an image of the entrance slit is displayed from the acquired entrance slit image data on the display device simultaneously with the plasma image and/or the acquired entrance slit image data are stored in the computer unit

20 simultaneously with the plasma image data

5. The method according to anyone of claims 1 to 4, wherein the plasma is a radially oriented plasma.

6. The method according to anyone of claims 1 to 3, wherein the plasma is an axially oriented plasma.

25 7. The method according to anyone of claims 1 to 6, wherein the spectrometer is an optical emission spectrometer.

8. The method according to anyone of claims 1 to 3 and 6, wherein the spectrometer is a mass spectrometer.

30 9. The method according to anyone of the preceding claims, which further comprises acquiring plasma sound data and either reproducing plasma sound from the registered plasma sound data on the display device and/or storing plasma sound data in the computer unit.

35 10. The method according to anyone of the preceding claims, wherein the display device and/or the computer unit are remotely located from the spectrometer.

11. A plasma spectrometer comprising a video-camera (7) fixed on an enclosure of a plasma generating device (1), said video-camera (7) being coupled to a display device (10) and/or computer unit (9) for displaying and/or storing plasma image data obtained through the video-camera.

5 12. A spectrometer of claim 11, wherein the plasma is a radially oriented plasma.

13. The spectrometer of claim 12 wherein image data of an entrance slit (3) of a detector device (2) of the spectrometer are simultaneously obtained with the plasma image data through the video-camera (7).

10 14. The spectrometer of claim 12 or 13, wherein the video-camera (7) is axially positioned with regard to the optical axis of the spectrometer.

15. The spectrometer of claim 11, wherein the plasma is an axially oriented plasma.

15 16. The spectrometer of claim 15, wherein the video camera is perpendicularly oriented with regard to the optical axis of the spectrometer.

17. The spectrometer according to anyone of claims 11 to 15, which is an optical emission spectrometer.

18. The spectrometer of claim 16, which is a mass spectrometer.

20 19. The spectrometer according to anyone of claims 11 to 18, further comprising a microphone fixed on the enclosure of the plasma generating device (1) for acquiring plasma sound data, said microphone being coupled to the computer unit (9) for storing and/or processing of the plasma sound data.